

**BY ORDER OF THE COMMANDER  
AIR FORCE MATERIEL COMMAND**



**AIR FORCE INSTRUCTION 21-116**

**AIR FORCE MATERIEL COMMAND**

**Supplement 1**

**13 JUNE 2001**

**Maintenance**

**MAINTENANCE MANAGEMENT OF  
COMMUNICATIONS-ELECTRONICS**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

---

**NOTICE:** This publication is available digitally on the HQ AFMC WWW site at: <https://www.afmc-mil.wpafb.af.mil/pdl/>.

---

OPR: AFMC CSO/SCOL  
(SMSgt Stephen W. Cron)  
Supersedes AFI21-116\_AFMCS1, 29 Dec 97

Certified by: AFMC CSO/SCO  
(Col Rebecca L. Corder)  
Pages: 10  
Distribution: F

---

This supplement expands on the guidance contained in AFI 21-116. This supplement does not apply to the Air National Guard or the US Air Force Reserve units and members. Units may further supplement this command supplement, as required. If supplemented, submit a copy to AFMC CSO/SCOL, Bldg 266, Rm S134, 4225 Logistics Ave, Wright Patterson AFB OH 45433-5769.

**SUMMARY OF REVISIONS**

Changes are too numerous to list individually, review the entire supplement.

**AFI 21-116, 10 December 2000, is supplemented as follows:**

2.33.2. All recommended improvements or requests to waive provisions of this publication will be submitted to AFMC CSO/SCOL.

3.2.2.1. Unit maintenance plans will include a notice of updated training products (AFJQS and AFQTP), MQCCs, CEMIs, and relevant C-E publications including maintenance and training related AFIs, general maintenance and methods and procedures technical orders, and AFOSH standards.

3.2.2.2. The maintenance plan may be paper or electronic medium.

3.2.2.3. The COM/CMSF will coordinate and publish ATCALS Response Times, Restoral Priorities, and Interruption Procedures (AFI 13-203, *Air Traffic Control*, and AFI 21-116, paragraph 4.13). They will review this MOI annually and update when changes are required.

3.3.2.4. Provide a courtesy copy of manning or authorization change requests effecting 2EXXX personnel to AFMC CSO/SCOL.

4.6.15. Maintenance Control (MC) personnel must annually read Attachment 11 and AFI 13-203, Chapter 2.

4.18.3. MC will monitor and direct the completion of all deferred PMIs or other maintenance actions affecting equipment status.

4.19.1.4. MC will ensure reconciliation of ESR errors with the host database manager (AFI 21-103, Chapter 6).

4.19.1.5. Coordinate with the host data base manager to determine responsibilities for updating AFSC specific Training Task Tables (TTT). Maintain a list of base personnel and units responsible for maintaining applicable 2EXXX TTT data.

5.5.2.11. MS trains MSRs using AFJQS 2EXXX-201G, Maintenance Support, and will add all evaluation and report related tasks from AFJQS 2EXXX-201G to the MSR's training record. MSRs may conduct evaluations after they've passed performance evaluations and are certified on AFJQS 2EXXX-201G evaluation and report related tasks.

5.5.2.13. (Added) Act as the single point-of-contact to the MAJCOM for Program/Mobile Depot Maintenance.

5.13.5. Develop local work cards following TO 00-5-1, *AF Technical Order System*, format procedures. Submit a copy of all local work card sets to AFMC CSO/SCOL.

5.15. No unit will be exempt from any portion of the MSEP without an approved waiver from AFMC CSO/SCOL. No production work center personnel who perform hands-on maintenance or equipment certification will be exempt from personnel evaluations.

5.16.3. Evaluators will use AFMC MQCCs for applicable equipment and processes. A list of AFMC MQCCs is available directly upon request from AFMC CSO/SCOL. The list may also be downloaded from AFMC CSO/SCOL's homepage, <https://www.afmc-mil.wpafb.af.mil/organizations/HQ-AFMC/SC/sco/scol/2exxx/msup.htm>.

5.16.4.3. Develop local MQCCs following Attachment 2 guidance for all equipment requiring technical evaluations not otherwise covered by an AF or AFMC MQCC. Provide a copy of all local MQCCs to AFMC CSO/SCOL.

5.17.2.1. MS will accomplish a minimum of 25% of all required technical evaluations in every functional area and/or work center. When MS personnel do not possess the required skills or qualifications, they will supervise the MSR for minimum of 25% of all required technical evaluations.

5.17.2.1.1.(Added) This requirement does not apply to the METNAV and Radar Evaluation Program (MREP). MS is not required to perform 25% of technical evaluations in work centers under this program. Those evaluations will be conducted in accordance with Attachment 14.

5.17.2.2. A sufficient degree of evaluation depth is achieved by consistent use of all applicable AF, AFMC, and/or local MQCCs by knowledgeable, trained evaluators. MS evaluators will use AFMQCC 100-1 in addition to any other applicable checksheet for all technical evaluations.

5.17.2.2.1. Ensure properly completed certification forms and facility reference data for all ATCALs equipment are maintained at the equipment/system site.

5.17.2.3. Use AFMQCC 100-1 for all technical evaluations. Use appropriate AFMC MQCCs or locally generated checksheet for all technical evaluations where AFMQCCs have not yet been published.

5.17.3.8.2.1.(Added) Task selection criteria for evaluations conducted through the MREP program will be in accordance with the requirements in Attachment 14.

5.17.3.8.2.2.(Added) Task selection will be based, first, upon unit performance indicators, i.e., deficiency analysis, uptime rates, NRTS, etc. If any trends exist, target those areas for evaluation.

5.17.3.8.2.3.(Added) If no trends exist, select tasks based on ensuring broad task coverage for the work center and individual.

5.17.3.8.2.3.1.(Added) Determine if work center personnel have been evaluated on tasks supporting all equipment end-item types. If any end-item type has been omitted, select tasks on that equipment.

5.17.3.8.2.3.2.(Added) Do not duplicate tasks selected on the technician's previous evaluation unless a trend has been identified and requires investigation.

5.17.3.8.2.3.3.(Added) You should not select tasks previously evaluated on other technicians assigned to the same work center. Choose another task unless you are investigating a possible trend.

5.17.3.8.2.4.(Added) Selected tasks will provide a thorough measure of evaluatee's technical skills (not all simple tasks).

5.17.4.3.5. Contact a senior enlisted manager or flight commander to determine customer satisfaction.

5.17.4.3.7.18. Review ATCALs facility records for currency, accuracy, and compliance with this instruction's Attachment 11, AFI 13-203, and AFMAN 11-225, *United States Standard Flight Inspection Manual*.

5.17.6.1.3. Work center responses to discrepancies must include management actions they will take to prevent reoccurrence.

5.17.6.1.5. For all evaluations related to ATCALs equipment and technicians, route evaluation reports resulting in unsatisfactory findings through the unit commander.

5.17.6.2.5.(Added) If an evaluation is delayed, document the reason for the delay in the evaluatee's AF Form 623A, **On-the-Job Training Record - Continuation Sheet**, and later in the evaluation report.

5.20.2.1. Unit deficiency analysis will include, at the minimum, a trend analysis of all MSEP evaluation results. The analysis will consist of deficiency and error data collected during a quarter and compared to data collected over the previous four quarters. It will identify trends, possible causes, and include recommended management actions to permanently correct any identified deficiencies. Units will provide a copy of their quarterly deficiency analysis reports, using the AFMC deficiency codes, to AFMC CSO/SCOL.

A2.3.3.(Added) AFMC CSO/SCOL Responsibilities. AFMC CSO/SCOL manages the AFMC MQCC program. AFMC CSO/SCOL:

A2.3.3.1.(Added) Determines what equipment end items require AFMCMQCCs and assigns OPRs.

A2.3.3.2.(Added) Reviews and approves draft AFMCMQCCs and assigns MQCC numbers based on A2.2, Functional Grouping.

A2.3.3.3.(Added) Maintains a file copy of all AFMCMQCCs. Provides electronic access to field units.

A2.3.3.4.(Added) Coordinates AFMC MQCCs and provides field unit interface with AFCA/SYLM.

A2.3.3.5.(Added) Coordinates biennial AFMCMQCC program review.

A2.4.3.(Added) AFMC Field Unit OPR Responsibilities. Field units having OPR responsibilities for developing AFMCMQCCs will:

A2.4.3.1.(Added) Develop and format criteria for assigned systems based on A2.9 requirements.

A2.4.3.2.(Added) Provide AFMC CSO/SCOL an electronic copy of approved AFMC MQCC.

A2.6.1. Forward all local MQCCs to AFMC CSO/SCOL.

A2.8.1. Changes to AFMCMQCCs. AFMC field units not having OPR responsibilities forward proposed changes to AFMC CSO/SCOL and provide an informational copy to the OPR.

A11.3. An authorized facility certifier must be present during flight inspections. Ensure the AF Form 3600 is annotated following post flight inspection procedures, if necessary.

A11.4.1. Certify the facility by completing a new AF Form 3600, **NAVAIDS Facility Verification Sheet**, and placing it, with the readings taken during annual certification, in the facility record. Remove the previous AF Form 3600 and retain in the work center historical files for trend analysis.

A11.4.1.1.(Added) No certifier available. If an ATCALS facility requires certification and no technician is authorized to perform certification, immediately report the condition to the senior air traffic control supervisor. Determination to shut down the facility/equipment or keep it active must be made by air traffic control. If the decision is made to continue using the system, notify Maintenance Control and the COM/CMSF immediately. Units must take necessary measures (TDY support in most cases) to obtain the required equipment certification. When no certifiers are available, inform AFMC CSO/SCOL and HQ AFMC/DOA.

A11.7.1. Work center supervisors or equipment certifiers will review facility records quarterly for completeness and accuracy. Establish the requirement and document completion in CAMS.

A11.7.2. Each facility record will be divided into six sections labeled as follows:

Tab 1 - Facility Certification and Technician Certification Designation Letter

Tab 2 - Facility Reference Data

Tab 3 - Preventive Maintenance Inspection Data

Tab 4 - PMI Ground Check

Tab 5 - Periodic Flight Inspection Reports

Tab 6 - Other Data

A11.11.1. Using the sampling plan in Attachment 7, work center supervisors or equipment certifiers will review facility records quarterly for completeness and accuracy. Establish the requirement and document completion in CAMS.

A11.11.2.1. For ATCALS Radio, maintain an AF Form 3600 for each end item at the facility requiring certification. Document all maintenance actions effecting certification for a period of 336 days beginning with the date of annual certification. At the end of this period complete a new AF Form 3600 to document subsequent annual certification, remove the previous AF Form 3600 from the facility record, and retain in the equipment's historical record for a period of two years.

A11.11.2.2. Maintain and file Performance Verification Worksheets for each item requiring certification in the same manner as the AF Form 3600.

A11.11.2.3. Facility records will contain a demarcation diagram indicating physical layout and cable pair assignment of ATCALS circuits, and a diagram indicating antenna layout and frequency assignment.

A11.11.2.4.(Added) Current copy of the technician certification designation letter signed by the unit commander stating who is authorized to certify ATCALS communications equipment.

A11.16.(Added) Required Reading. Maintenance Support personnel evaluating METNAV and Radar ATCALS systems and work center personnel maintaining METNAV and Radar ATCALS equipment must read the following annually and upon assignment or reassignment to an ATCALS work center: this attachment, AFI 13-203, with emphasis on the Equipment and Operating Procedures chapter, and applicable sections, based on equipment assigned, of AFMAN 11-225. Schedule and document completion of this reading in CAMS.

A11.16.1.(Added) Maintenance Support personnel evaluating Radio ATCALS systems and work center personnel maintaining Radio ATCALS equipment must annually read this attachment. Schedule and document completion of this reading in CAMS.

A11.16.2.(Added) Maintenance Control personnel must annually read this attachment and AFI 13-203, Chapter 2.

**Attachment 14 (ADDED)**  
**METNAV AND RADAR EVALUATION PROGRAM**

**A14.1. METNAV and Radar Evaluation Program.**

**A14.2. Purpose.** This attachment describes the procedures and guidelines required to implement the METNAV and Radar Evaluation Program (MREP). The MREP will enhance unit MSEP programs by conducting unit technical evaluations on radar, navigational, and weather equipment and personnel evaluations for the technicians maintaining them. A specially trained evaluator, with expert technical knowledge, will be available to help all AFMC units with their MSEP evaluations regardless of current manning or training levels in the unit.

**A14.2.2. Overview.**

A14.2.2.1. MREP evaluators will maintain equipment proficiency, training record qualification documentation of all systems they are required to evaluate, and ATCALS facility certification authority. AFETS personnel will provide equipment specific training using the Consolidated Hands-on Training (CHOT) facility and administer annual MSEP personnel evaluations to the MREP evaluators. AFMC CSO/SCOL will provide hands-on training in evaluation techniques to the MREP.

A14.2.2.1.1. MREP evaluators will successfully complete the following training:

A14.2.2.1.1.1. AFJQS 201G, Maintenance Support Evaluator

A14.2.2.1.1.2. AFJQS 201H, Work Center Deficiency/Discrepancy Reporting

A14.2.2.1.1.3. AFJQS 201C, Corrosion Prevention and Control

A14.2.2.1.1.4. Should complete formal AETC Communications-Electronics Maintenance Support Procedures course.

A14.2.2.2. Annually, the MREP evaluators will read applicable sections of this instruction, AFI 13-203, with emphasis on the Equipment and Operating Procedures chapter, and applicable sections, based on all MAJCOM equipment assigned, of AFMAN 11-225.

A14.2.2.3. MREP evaluations will have no affiliation with any MAJCOM-level inspection program. MREP will return evaluation reports to the COM/CMSF, who will incorporate them into the unit's normal MSEP process.

A14.2.2.4. MREP does not relieve the unit of their MSEP responsibilities. The MREP conducts the minimum number of required MSEP evaluations, writes reports, and provides recommended corrective or management actions. The COM continues to determine the depth of the unit MSEP program and retains the authority to direct additional unit conducted evaluations, as they deem necessary.

A14.2.2.4.1. The actions taken following the evaluation remain with the unit. Analyzing results, investigating causes, report routing, recommending corrective actions, managing corrective actions, following-up, and incorporating results into the unit deficiency analysis remain unit functions in accordance with this instruction.

A14.2.2.5. The MREP will track MSEP discrepancies they discover, using AFMC command discrepancy codes, to identify MAJCOM trends and target task selection. They will publish an annual MAJCOM trends summary. The trend summary will not identify units, but only errors collected during the period.

**A14.3. HQ Responsibilities.**

**A14.3.1.** HQ AFMC/SC will provide policy and guidance to the METNAV and Radar Evaluation Program.

**A14.3.2.** HQ AFMC/DOAT will fund all MREP related activities.

**A14.3.3.** HQ AFMC/DOAT will prepare all TDY orders in support of MREP evaluations.

**A14.3.4.** AFMC CSO/SCOL, in conjunction with HQ AFMC/DOAT, will select qualified individuals for the MREP evaluator positions.

**A14.3.5.** Delegate all authority and responsibility to the MREP team to coordinate and make necessary changes to the schedule after publication, satisfy out-of-cycle requests, and schedule follow-on personnel evaluations.

**A14.3.6.** AFMC CSO/SCOL and HQ AFMC/DOAT will review the annual, MREP developed, trend analysis report and provide information copies to unit commanders. The MREP will provide information to the Air Force Flight Standards Agency (AFFSA) for possible CHOT improvements.

**A14.3.7.** AFMC CSO/SCOL will survey all unit commanders annually on the effectiveness of the MREP. In conjunction with HQ AFMC/DOAT, they will publish an annual report to the unit commanders listing positive and negative trends, unit survey feedback, CHOT training changes as a result of MREP feedback, and recommended program improvements.

**A14.3.8.** Annually AFMC CSO/SCOL and HQ AFMC/DOAT will review policies, procedures, results, and problems to improve the MREP process.

**A14.3.9.** AFMC CSO/SCOL will provide hands-on evaluator training to the MREP. They will provide on-going advice and assistance on evaluation issues. They will conduct one annual evaluation of the MREP evaluators to coincide with a normally scheduled unit visit.

#### **A14.4. Scheduling Evaluations.**

**A14.4.1.** The unit will:

A14.4.1.1. Identify all METNAV, radar, and weather equipment that requires an MSEP technical evaluation to the MREP. Identify any new equipment to the MREP at least 60 days prior to the expected installation completion date.

A14.4.1.2. Identify all technicians maintaining METNAV, radar, and weather equipment requiring personnel evaluations to the MREP. The unit will notify the MREP within 30 days when any changes are made (separations, retirements, PCS in, PCS out, movement to and from staff positions, and long term augmentation) that will effect their evaluation schedule.

A14.4.1.3. MREP will accomplish technical and personnel evaluations required for managerial evaluations. Technical and personnel evaluations conducted by the MREP during their normal site visits may be used to satisfy the managerial evaluation inspection requirements. If the COM/CMSF desires special technical and personnel evaluations to occur in conjunction with the managerial evaluation, they should make the request as part of their normal annual scheduling process.

A14.4.1.4. The unit will receive a proposed annual schedule by 31 Jul of each year. Coordinate the annual MREP equipment technical and personnel evaluation schedule by 15 Aug and provide recommended alternative dates, if necessary.

A14.4.1.5. Identify out-of-cycle requests for technical and personnel evaluations to the MREP immediately. The MREP will respond to requests as soon as possible, but not later than 30 calendar days following the request. The MREP will negotiate a mutually acceptable date and a method of accomplishment with the COM/CMSF.

**A14.4.2. MREP will:**

A14.4.2.1. Maintain a database, based on unit equipment and personnel inputs, to facilitate scheduling of technical inspections and personnel evaluations.

A14.4.2.2. Develop a proposed annual schedule and send it to the unit COM/CMSF by 31 Jul of each year.

A14.4.2.3. Receive unit inputs with recommended changes, mitigate all changes, and publish an annual evaluation schedule by 1 Sep of each year.

A14.4.2.4. In the event of MSEP personnel evaluation failure, MREP will coordinate a reevaluation date immediately, adding in the necessary time for retraining and recertification. The evaluation will occur within 30 days of training recertification.

**A14.5. MREP Visit Preparation.**

**A14.5.1. The unit will:**

A14.5.1.1. Coordinate task selection with the MREP by identifying any trends discovered through the unit deficiency analysis. The COM/CMSF has the authority to direct MREP evaluation of any task recommended by their MS staff.

A14.5.1.2. Schedule downtime in support of personnel evaluations and technical inspections during MREP evaluator visit.

A14.5.1.3. Ensure appropriate test equipment, tools, etc., are available to support the scheduled technical inspections and personnel evaluations.

A14.5.1.4. Schedule an outbrief with the COM/CMSF and the MREP.

**A14.5.2. The MREP will:**

A14.5.2.1. Contact the unit COM/CMSF two weeks in advance of the scheduled evaluation and coordinate the following:

A14.5.2.1.1. What equipment and which personnel will be evaluated.

A14.5.2.1.2. Test equipment and necessary materiel to conduct the evaluations.

A14.5.2.1.3. Downtime requirements for the evaluations.

A14.5.2.1.4. Task Selection. The MREP may evaluate any task the technician is qualified and certified on. Tasks will be selected in accordance with paragraphs 5.17.3.8.2. through 5.17.3.8.2.3(Added) and the following criteria:

A14.5.2.1.4.1. Task selection will be based first, upon local performance indicators provided by the unit and any special targeted areas desired by the COM/CMSF.

A14.5.2.1.4.2. MREP will analyze their discrepancy database to determine if any MAJCOM trends exist and, if necessary, recommend those areas for evaluation.

A14.5.2.1.4.3. For personnel who are authorized to certify METNAV and radar ATCALS facilities, ensure there are a minimum of two tasks from the ATCALS Critical Task List, located at the AFMC CSOS/SCOL Webpage, for each system they certify.

A14.5.2.1.4.4. The COM/CMSF, MS, MREP, and Work Center Supervisor will keep selected tasks confidential from the evaluatee until no earlier than one day prior to their evaluation.

#### **A14.6. Conducting MREP Evaluations.**

##### **A14.6.1. The unit will:**

A14.6.1.1. Provide a unit MS evaluator to assist MREP evaluator during all evaluations. If a unit MS evaluator is not available, the work center MSR will work with the MREP in the performance of the equipment technical evaluations.

A14.6.1.2. Receive the evaluation reports from the MREP evaluator and initiate all remaining MSEP requirements directed by this instruction.

##### **A14.6.2. The MREP will:**

A14.6.2.1. Conduct all AFI required technical and personnel evaluations on the scheduled date.

A14.6.2.1.1. Technical Evaluations will be conducted in accordance with paragraph 5.17.2.

A14.6.2.1.2. Personnel Evaluations will be conducted in accordance with paragraph 5.17.3.8 and Attachment 8.

A14.6.2.1.2.1. The MREP will evaluate a technician's proficiency in theory of operations tasks. Questions will be associated with the task being performed. The evaluator will use the criteria in Attachment 8 to determine the impact of incorrect responses.

A14.6.2.2. MREP will produce MSEP evaluation reports for the COM/CMSF (electronic and hard copy) on each technical and personnel evaluation in accordance with this instruction. The MREP will include a recommended corrective action on the report.

A14.6.2.3. The MREP will outbrief the COM/CMSF on the evaluation results and their observations.

A14.6.2.3.1. Disagreements on evaluation results will be resolved by the COM/CMSF in accordance with this instruction.

A14.6.2.4. The authority to close evaluation reports remains with the COM/CMSF, in accordance with this instruction. The MREP evaluator may provide assistance, as requested, to determine whether unit corrective actions are adequate for a permanent fix.

A14.6.2.5. After coordination with a technician's COM/CMSF, MREP may conduct evaluations at the CHOT.

A14.6.2.5.1. No more than 25% of a unit's MSEP personnel evaluations may be conducted at the CHOT.

A14.6.2.5.2. Task selection criteria will remain the same as evaluations conducted in the unit.

A14.6.2.5.3. Evaluations will be conducted prior to the start of CHOT training.

A14.6.2.5.4. Results will be briefed to the COM/CMSF via telephone and the report will be sent electronically.

A14.6.2.6. Completion of the MSEP technical evaluation may satisfy the facility certification requirement as outlined in Attachment 11, if all certification parameters are included in the technical inspection checklist items. In this case, the unit commander may direct the MREP evaluator to sign the AF Form 3600 indicating completion of the annual certification.

**A14.7. MREP Trends Analysis.**

**A14.7.1.** MREP will maintain all inspection reports and discrepancies, using AFMC deficiency codes, in a database to provide command level trend analysis. They will use this database as a basis for task selection and coordinate CHOT training adjustments.

**A14.7.2.** MREP will provide an annual trend analysis report to HQ AFMC/DOA, AFMC CSO/SCOL, and unit commanders without unit designators or names.

**A14.8. Contingency Planning.**

**A14.8.1.** In the event that a MREP evaluator is not available, and the required evaluation cannot be rescheduled, AFMC CSO/SCOL and HQ AFMC/DOAT will coordinate for an alternate evaluator.

DEBRA L. HALEY, SES, Director  
Communications and Information